

THOR

ACTICIDE® 45

MILDEWCIDE

ACTICIDE® 45 is an industrial microbicide to be used for the protection of paint films, coatings, including wood coatings and wood coating solutions, adhesives, sealants, mastics, caulks, applied film/wet state of adhesives, tackifiers, paints, coatings and other building materials, hides, leather, textiles, fibers, fabrics, and plastic/PVC/vinyl products against attack by mildew, and fungus.

ACTIVE INGREDIENT:

2-n-Octyl-4-isothiazolin-3-one 46.5%

INERT INGREDIENTS: 53.5%

TOTAL: 100.0%

KEEP OUT OF REACH OF CHILDREN

DANGER

FIRST AID

IF SWALLOWED: *Call poison control center or doctor immediately for treatment advice.

*Have person sip a glass of water if able to swallow.

*Do not induce vomiting unless told to do so by the poison control center or doctor.

*Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: *Take off contaminated clothing.

*Rinse skin immediately with plenty of water for 15-20 minutes.

*Call a poison control center or doctor for treatment

IF INHALED: *Move person to fresh air.

*If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.

*Call a poison control center or doctor for further treatment

IF IN EYES: *Hold eye open and rinse slowly and gently with water for 15-20 minutes.

*Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.

*Call a poison control center or doctor for treatment advice.

HOT LINE NUMBER: Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-424-9300 for emergency medical treatment information.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

EPA Reg. No. 67071-6

Manufactured By:

Thor GmbH

D-67346 Speyer, Germany

Tel. (06232) 6360

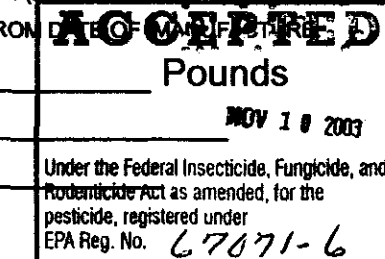
U.S. Office:

Acti-Chem Specialties, Inc.

56 Quarry Road

Trumbull, CT 06611 USA

Tel. (203) 365-6530



PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER

CORROSIVE. CAUSES PERMANENT, IRREVOCABLE EYE DAMAGE AND SKIN BURNS. MAY CAUSE ALLERGIC SKIN REACTION. MAY BE FATAL IF SWALLOWED. HARMFUL IF ABSORBED THROUGH SKIN OR INHALED. PROLONGED OR REPEATED OVEREXPOSURE CAN CAUSE CENTRAL NERVOUS SYSTEM EFFECTS AND KIDNEY AND LIVER DAMAGE. DO NOT GET IN EYES, ON SKIN, ON CLOTHING. WEAR GOGGLES OR FACE SHIELD. WEAR PROTECTIVE CLOTHING AND RUBBER GLOVES. AVOID BREATHING VAPOR OR MIST. KEEP CONTAINER CLOSED. USE WITH ADEQUATE VENTILATION. DO NOT TAKE INTERNALLY. WASH THOROUGHLY WITH SOAP AND WATER AFTER HANDLING AND BEFORE EATING, DRINKING, OR USING TOBACCO.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish and wildlife. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or public waters unless this product is specifically identified and addressed in an NPDES permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA. Do not contaminate water by cleaning of equipment or disposal of waste. Apply this pesticide only as specified on this label.

STORAGE AND DISPOSAL

Do not contaminate food or feed by storage, disposal or cleaning of equipment.

STORAGE DISPOSAL: Do not store or transport in unlined metal containers.

PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER DISPOSAL: Metal container: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by other procedures approved by state and local authorities. Plastic container: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incinerator or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

GENERAL: CONSULT FEDERAL, STATE OR LOCAL DISPOSAL AUTHORITIES FOR APPROVED ALTERNATIVE PROCEDURES.

CONDITIONS OF SALE AND WARRANTY

Thor GmbH warrants that the product conforms to its chemical description and is reasonably fit for the purpose stated on the label only when used in accordance with label directions under normal conditions of use. THOR GMBH MAKES NO OTHER EXPRESS OR IMPLIED WARRANTIES EITHER OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. USE, Handling, storage and use of the product by Buyer or User are beyond the control of Thor GmbH and Seller. Risks such as ineffectiveness or other unintended consequences resulting from, but not limited to, failure to follow label directions will be assumed by the Buyer or User. IN NO CASE WILL THOR GmbH or SELLER BE HELD LIABLE FOR CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES RESULTING FROM THE HANDLING, STORAGE OR USE OF THIS PRODUCT.

NOT FOR SALE OR USE AFTER 24 MONTHS FROM DATE OF MANUFACTURE

Net Contents: _____ Pounds

Date of Manufacture: _____ NOV 18 2003

Lot #: _____

CORROSIVE LIQUID, TOXIC, N.O.S. (2-n-Octyl-4-isothiazolin-3-one), 8, UN 2922, PG-III

Panel 1 of 2
Label # 060(c1)
09/30/03

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

DRY FILM PRESERVATIVE FOR PAINTS, COATINGS, WOOD COATINGS, ADHESIVES, SEALANTS, MASTICS, CAULKS: Acticide® 45 mildewcide is recommended for the control of fungi in latex and oil-based paints, coatings and adhesives (non-food contact).

Add two to five pounds of Acticide® 45 per 100 gallons of paint. Add 0.1 to 5 pounds Acticide® 45 per 100 gallons of wood coatings or wood coating solutions. See the accompanying technical bulletin for more detail on the use of stabilizers, optimum pH conditions of use and incompatibilities with other ingredients of paints.

LEATHER PRESERVATION: Acticide 45 is recommended for the prevention of bacterial and fungal growth on wet leather stock such as pickled, chrome-tanned and vegetable-tanned hides and leather, including wet-blues. Normal addition levels are in the range of 0.014% - 0.045% by weight of Acticide 45 calculated on the pelt weight. The optimum use concentrations will depend on the manufacturing process, the required properties of the product and the environment to which it will be exposed. Levels will be particularly affected by natural fat content, skin thickness, storage time and tannery conditions.

TEXTILE, FIBER AND FABRIC PRESERVATION: Acticide 45 is recommended for the prevention of bacterial and fungal growth, in the presence of moisture, in/on fibers, textiles and fabrics, including carpets and backing materials, natural and man-made. Normal addition levels are in the range of 0.1%-0.25% by weight of Acticide 45 calculated on the materials weight. The optimum use concentrations will depend on the manufacturing process, the properties of the product and the environment to which it will be exposed. Levels will be particularly affected by the fabric thickness, proximity to the air circulation, storage time and ambient humidity.

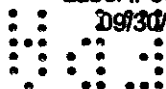
PRESERVATION OF PLASTIC/PVC/VINYL PRODUCTS: Acticide 45 mildewcide is recommended for the control of mildew and fungi in PVC flooring and wall coverings, coated fabrics for upholstery, interior automotive parts, refrigerator gaskets, shower curtains, mattress covers, artificial leather, rain wear, protective wear, shoes, boots, PVC slippers and gloves. For these uses, generally not subject to continuous external environmental conditions, use 0.1%-0.5% of Acticide 45 based on the total weight of the formulation/composition (or 0.05% to 0.5% based on plastisol).

Acticide 45 is also recommended in situations generally subject to external environmental variations such as use in automotive landau tops, external automotive trim, tarpaulins, tents, awnings, indoor/outdoor carpeting, garden hoses, pool and pond liners, marine upholstery, swimming pool liners, roof liners, lining foils, cable casings, PVC tiles and fibers. For these external-type uses apply 0.15%-0.75% of Acticide 45 based on the total weight of the formulation/composition (4.35 lbs/1000 lbs. of compound).

Mode of application for plastic/PVC/Vinyl Products. Acticide 45 can, in most of the standard methods of plastics production, be introduced in different phases of the process cycle. An absolutely homogeneous incorporation into the material is essential for a good antimicrobial (anti-fungal) activity. The mixture of the product with fluid additives should be ensured by the use of a good mechanical stirring device. The product may never be introduced directly into fillers and pigments. Acticide 45 is first dissolved in the plasticizer. Subsequently, the rest of the additives are mixed in and homogeneously worked together. The product can also be homogeneously distributed in finished plastisols by intensive mixing.

APPLIED FILM/WET STATE PRESERVATIVE: Acticide 45 microbicide is recommended for the control of bacteria and fungi in the applied film/wet state of adhesives, tackifiers, paints, coatings and building materials (such as fire-proofing and sound-proofing coatings) for the purpose of protecting the applied film/wet state prior to a full cure.

Panel 2 of 2
Label # 060(c1)
D9730/03



ACCEPTED

NOV 10 2003

Under the Federal Insecticide, Fungicide, and
Rodenticide Act as amended, for the
pesticide, registered under
EPA Reg. No. 67071-6

2/7

3/7

ACTICIDE® 45

TECHNICAL BULLETIN

GENERAL DESCRIPTION

ACTICIDE® 45 is an effective mildewcide specifically formulated for the protection of aqueous and solvent based paints from fungal growth in the dry film and applied film/wet-states. It is also used in the protection of coatings, including wood coatings and wood coating solutions, adhesives, sealants, mastics, caulks, hides, leather, textiles, fibers, fabrics, and plastic/PVC/Vinyl products against attack by mildew, and fungus.

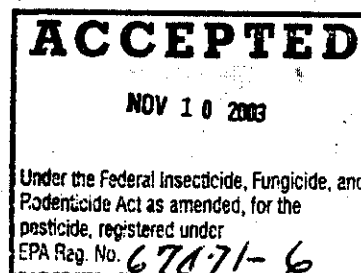
COMPOSITION:

ACTICIDE® 45 is described chemically as 2-n-Octyl-4-isothiazolin-3-one. It is one of a comprehensive range of biocides manufactured by Thor worldwide and is metal and formaldehyde free.

TYPICAL PROPERTIES:

ACTICIDE® 45 has the following typical properties:

Appearance:	Clear yellow liquid
Flash point:	92° C
Boiling point:	187° C
Freezing Point:	ca ~ 13° C
Odor:	No distinct odor
Specific gravity:	1.03 g/cm ³ (20° C)
Solubility:	Soluble in alcohols, mineral spirits. Minimally soluble in water (0.525 g/L @ 22 degrees C)



Viscosity: 49.5 m Pas, 20° C (capillary)

DIRECTIONS FOR USE: It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

BIOCIDAL PROPERTIES:

ACTICIDE® 45 is very effective in preventing the growth of fungi known to degrade paint films, coatings, including wood coatings and wood coating solutions, adhesives, sealants, mastics, caulks, hides, leather, textiles, fibers, fabrics, and plastic/PVC/vinyl products against attack by mildew, and fungus in the dry state. It also shows some activity against bacterial and fungal growth in the wet state. Product activity applies to a wide spectrum of fungi commonly associated with product failure. Some of these organisms are as follows:

Alternaria sp.	Ceratocystis sp.
Aspergillus sp.	Cladosporium sp.
Aureobasidium sp.	Sclerophoma sp.
Candida albicans (yeast)	Streptomyces sp.

APPLICATIONS:

ACTICIDE® 45 is recommended for the dry state and the applied film/wet state protection of films for most interior and exterior paints and coatings including aqueous and solvent based paints and wood coatings and wood coating solutions, adhesives (non-food contact), sealants, mastics, caulks, hides, and leather

ACTICIDE® 45 is used in textiles, fibers, fabrics, and plastic/PVC/vinyl products. In addition, **ACTICIDE® 45** can be used in solvents such as white spirits and kerosene to provide an ideal fungicidal pretreatment for surfaces prior to coating.

QUANTITIES OF USE:

The amount of **ACTICIDE® 45** needed to protect dry and the applied/wet-states of paint films and wood coatings and wood coating solutions varies with the type formulation and exposure conditions of the film (e.g., indoor vs. tropical climates). Generally two to five pounds of **ACTICIDE® 45** are used per 100 gallons of paint. Similar application levels are used with oil-based paints, wood coatings or coatings. Add 0.1 to 5 pounds **ACTICIDE® 45** per 100 gallons of wood coatings and wood coating solutions. In industrial adhesives mildew resistance is obtained using such levels on a weight/weight basis -- i.e., two to five pounds of **ACTICIDE® 45** per 1000 pounds of adhesive. The Acti-Chem Specialties Technical Department will assist in the determination of the optimum quantity required by your product. This facility is especially helpful where information is required about a formulation which has a greater than usual susceptibility to microbiological spoilage and/or is to be used in an area where the environmental conditions are particularly conducive to fungal growth.

ACTICIDE® 45 is recommended for the prevention of bacterial and fungal growth on wet leather stock such as pickled, chrome-tanned and vegetable-tanned hides and leather, including wet-blues. Normal addition levels are in the range of 0.1% - 0.25% by weight of **ACTICIDE® 45** calculated on the pelt weight. The optimum use concentrations will depend on the manufacturing process, the required properties of the product and the environment to which it will be exposed. Levels will be particularly affected by natural fat content, skin thickness, storage time and tannery conditions.

ACTICIDE® 45 is recommended for the prevention of bacterial and fungal growth, in the presence of moisture, in/on fibers, textiles and fabrics, including carpets and backing materials, natural and man-made. Normal addition levels are in the range of 0.014% - 0.045% by weight of **ACTICIDE® 45** calculated on the materials weight. The optimum use concentrations will depend on the manufacturing process, the properties of the product and the environment to which it will be exposed. Levels will be particularly affected by the fabric thickness, proximity to the air circulation, storage time and ambient humidity.

ACTICIDE® 45 is recommended for the control of mildew and fungi in PVC flooring and wall coverings, coated fabrics for upholstery, interior automotive parts, refrigerator gaskets, shower curtains, mattress covers, artificial leather, rain wear, protective wear, shoes, boots, PVC slippers and gloves. For these uses, generally not subject to continuous external environmental conditions, use 0.1% - 0.5% of **ACTICIDE® 45** based on the total weight of the formulation/composition (or 0.05% to 0.5% based on plastisol).

ACTICIDE® 45 is also recommended in situations generally subject to external environmental variations such as use in automotive landau tops, external automotive trim, tarpaulins, tents, awnings, indoor/outdoor carpeting, garden hoses, pool and pond liners, marine upholstery, swimming pool liners, roof liners, lining foils, cable casings, PVC tiles and fibers. For these external-type uses apply 0.15% - 0.75% of **ACTICIDE® 45** based on the total weight of the formulation/composition.

Mode of application for plastic/PVC/Vinyl Products. **ACTICIDE® 45** can, in most of the standard methods of plastics production, be introduced in different phases of the process cycle. An absolutely homogeneous incorporation into the material is essential for a good antimicrobial (anti-fungal) activity. The mixture of the product with fluid additives should be ensured by the use of a good mechanical stirring device. The product

5/7

may never be introduced directly into fillers and pigments. **ACTICIDE® 45** is first dissolved in the plasticizer. Subsequently, the rest of the additives are mixed in and homogeneously worked together. The product can also be homogeneously distributed in finished plastisols by intensive mixing.

METHOD OF USE:

ACTICIDE® 45 can be incorporated with most paint and coating products at any stage in the manufacturing process. It is preferably added in the let-down stage during manufacture of the paint or wood coating and wood coating solutions. Add slowly with good agitation just before addition of thickener. **ACTICIDE® 45** is used in oil-based paints at a level similar to those used in latex products. The use of lithopone or other sulfide type pigments is not recommended with this Acticide. Additional solvent glycols or cellosolves may be useful to help dissolution.

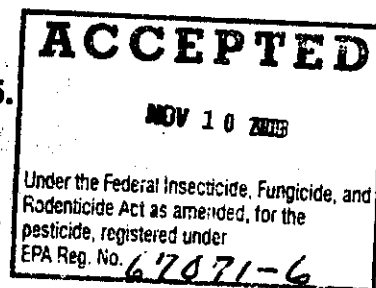
COMPATIBILITY:

ACTICIDE® 45 is compatible with most raw materials used in microbiologically susceptible products. However, it may be deactivated by ammonia and amines at higher pH's. Contact of **ACTICIDE® 45** with strong oxidizing or reducing agents should also be avoided. Stabilizers can be used to protect the **ACTICIDE® 45**. Acti-Chem's technical service facilities will gladly assist in identifying a suitable stabilizer, or a method of stabilization, appropriate to your particular formulation.

PRECAUTIONARY STATEMENTS:

The following precautions should be observed in handling and using **ACTICIDE® 45**.

KEEP OUT OF REACH OF CHILDREN
DANGER
FIRST AID



- | | |
|----------------------|--|
| If Swallowed: | <ul style="list-style-type: none"> *Call poison control center or doctor immediately for treatment advice. *Have person sip a glass of water if able to swallow. *Do not induce vomiting unless told to do so by the poison control center or doctor. *Do not give anything by mouth to an unconscious person. |
| If on Skin/clothing: | <ul style="list-style-type: none"> *Take off contaminated clothing. *Rinse skin immediately with plenty of water for 15-20 minutes. *Call a poison control center or doctor for treatment |
| If in Eyes: | <ul style="list-style-type: none"> *Hold eye open and rinse slowly and gently with water for 15-20 minutes. *Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. *Call a poison control center or doctor for treatment advice. |
| If Inhaled: | <ul style="list-style-type: none"> *Move person to fresh air. *If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. *Call a poison control center or doctor for further treatment |

HOT LINE NUMBER: Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-424-9300 for emergency medical treatment information.

Note to physician: Probable mucosal damage may contraindicate the use of gastric lavage.

SAFETY AND HANDLING:

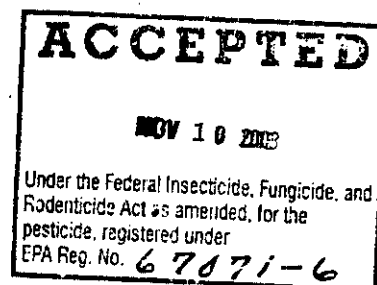
It is recommended that protective clothing be worn when handling **ACTICIDE® 45**. This material is corrosive, and chemical resistant gloves such as those made from butyl rubber should be worn and immediately discarded if there is any indication of tears or break-through. Respiratory protection is required if exposure limits are exceeded. Chemically resistant aprons are advisable.

PACKAGING: **ACTICIDE® 45** is delivered in plastic drums containing 25 kg net and in polyethylene lined steel drums containing 200 kg net.

ECOLOGY: **ACTICIDE® 45** is toxic to fish and to wildlife. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or public waters unless this product is specifically identified and addressed in an NPDES permit. Do not discharge effluent containing this product to sewer systems without previously notifying the sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA. Do not contaminate water by cleaning of equipment or disposal of waste. Apply this pesticide only as specified on this label.

TOXICOLOGY: Detailed examination by independent industrial toxicological laboratories has shown **ACTICIDE® 45** to have the following toxicity:

Acute oral toxicity:	LD ₅₀ (rat) 279 mg/kg
Acute dermal toxicity:	LD ₅₀ (rat) > 2000 mg/kg
Acute Inhalation:	LC ₅₀ (rat) 0.60 mg/L (4 hr)
Primary skin irritation (rabbit):	Severe
Skin sensitization (guinea pig):	Delayed contact hypersensitivity



STORAGE :

ACTICIDE® 45 should be stored in the original containers and, in accordance with good stock rotation practice, should be used within 24 months of purchase, being protected from extremes of temperature during storage

TRANSPORTATION: DOT hazard class 8 (corrosive material). DO NOT STORE OR SHIP IN UNLINED METAL CONTAINERS. USE ONLY ORIGINAL CONTAINERS.

SPILLAGE / DISPOSAL

Spilled material should be diked and absorbed into an inert material such as clay or vermiculite and the absorbent transferred to a pail or other suitable vessel. Treat with freshly prepared 5% solutions of sodium hypochlorite and sodium bicarbonate mixed together in order to deactivate the **ACTICIDE® 45**. Local surfaces of the spill may be decontaminated with a mixture of 5% sodium hypochlorite solution and a 5% solution of sodium bicarbonate.

STORAGE: Do not store or transport in unlined metal containers. Do not contaminate with strong oxidizing or reducing agents. Do not contaminate water, food or feed by storage, disposal or cleaning of equipment.

PESTICIDE DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

7/7

CONTAINER DISPOSAL: Metal container: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by other procedures approved by state and local authorities. Plastic container: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

GENERAL: CONSULT FEDERAL, STATE OR LOCAL DISPOSAL AUTHORITIES FOR APPROVED ALTERNATIVE PROCEDURES.

The information contained herein is given without any warranty express or implied, except that such information is to the best of our knowledge and belief, true and accurate. Thor recommends that customers independently test and evaluate its products in order to decide their safety and effectiveness.

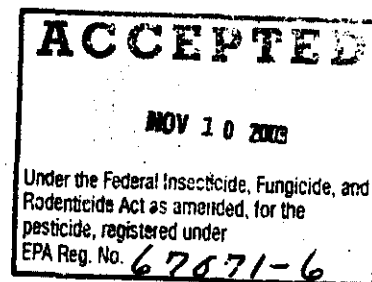
In submitting this information, no liability is assumed nor permission given to induce or recommend to practice any patented invention without a license.

MANUFACTURED BY/FOR:

Thor GmbH
Speyer, Germany

September 2003

Revised 10/29/97, 7/10/99 & 2/16/01, 01/00/02, 07/18/02, 04/01/03, 09/30/03



ACTI-CHEM SPECIALTIES, INC.

56 Quarry Road, Trumbull, CT 06611 USA TEL: (203) 385-6530 FAX: (203) 385-6537